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THE SYNTACTIC STRUCTURES OF 5-YEAR-OLD CULTURALLY DEPRIVED CHILDREN.

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THIS STUDY WAS MADE IN AN ATTEMPT TO DISCOVER HOW MUCH ENVIRONMENTAL STIMULATION IS NECESSARY FOR NORMAL LANGUAGE DEVELOPMENT IN CHILDREN. THROUGH ANALYSIS OF TRANSFORMATIONAL GRAMMER, THE SYNTACTIC STRUCTURES OF TWENTY 5-YEAR-OLD CULTURALLY DEPRIVED NEGRO CHILDREN IN BALTIMORE WERE COMPARED TO THOSE OF A GROUP OF MIDDLE CLASS WHITE NURSERY SCHOOL CHILDREN IN BOSTON WHO WERE SUBJECTS OF A STUDY BY PAULA MENYUK. DIALECT DIFFERENCES WERE MINIMIZED BY A CONCEPT OF FUNCTIONAL EQUIVALENCE WHICH EQUATED STATEMENTS HAVING DIFFERENT WORDS BUT THE SAME MEANING. THE TOTAL NUMBER OF SENTENCES WHICH THE CHILDREN PRODUCED IN THE EXPERIMENTAL SESSION, THE TOTAL NUMBER OF DIFFERENT SYNTACTIC STRUCTURES USED, AND AN AVERAGE SENTENCE COMPLEXITY SCORE WERE TAKEN AS INDICES OF LINGUISTIC PERFORMANCE. A SUBSTANTIAL DIFFERENCE IN STRUCTURE USE WAS FOUND BETWEEN THE TWO GROUPS, WITH THE BOSTON GROUP USING MANY MORE SYNTACTIC STRUCTURES. THE NEGRO GROUP WAS NOT HOMOGENEOUS IN PERFORMANCE BUT HAD A WIDE RANGE OF DIFFERENCE IN COMPLEXITY AND NUMBER OF SYNTACTIC STRUCTURES USED. LARGE DIFFERENCES WITHIN THE NEGRO GROUP WOULD SUGGEST THAT ENVIRONMENT PLAYS A MAJOR ROLE IN LANGUAGE DEVELOPMENT. IF LANGUAGE IS IMPLICATED IN THINKING BEHAVIOR, THEN IT IS POSSIBLE THAT THE DEGREE OF IMMATURITY IN LANGUAGE DEVELOPMENT IN EARLY CHILDHOOD IS SIGNIFICANT IN THE CHILD'S GENERAL COGNITIVE DEVELOPMENT. EXPLORATION IN THIS AREA IS CONTINUING. THE NEGRO SPEECH SAMPLE IS BEING INCREASED, AND A TABLE OF STRUCTURAL EQUIVALENTS BETWEEN STANDARD ENGLISH AND THE NONSTANDARD ENGLISH OF NEGRO CHILDREN IS BEING DEVELOPED. (MS)

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The syntactic structures of 5-year-old culturally deprived children *

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I would like to pose a general question: What kind of environmental support is necessary for normal language development? There are perhaps several points of view on this question. One point of view -- that of a number of learning theorists such as Mowrer and Skinner -- suggests that the environmental support necessary for language development is the same as for any kind of behavior, namely appropriate reinforcement.

A second point of view, held by a number of different researchers, describes language acquisition as a rule-learning process uninfluenced by reinforcement. This viewpoint is certainly influenced by the work of the linguist Noam Chomsky who stresses the biological (i.e. innate) components of language development, and suggests that the only necessary environmental support is the mere presence in the child's environment of some mature speakers of the language to be learned.

Now I would like to turn to a particular question: How much environmental stimulation is necessary for normal language development? This question immediately raises the problem of whether there are norms available for the different stages of linguistic development.

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Although a great deal of information is available in the literature, there are so many inconsistencies to be found there that I believe it is safe to say that no reliable norms exist for children's language behavior. We cannot say with any certainty that at a specific age a child will ordinarily have acquired a particular linguistic structure. Perhaps an exception to this generalization may be made about the child's acquisition of the phonemic-system about which our information is much more reliable.

Some intriguing claims have been made in recent years to the effect that by 3, 4, or 5 years of age children have acquired the "basic" structures of their language. However, the question of what constitutes the collection of basic structures is still an open one. Part of the reason for this is that American-English syntax is far from being completely described. To name those structures as basic which already exist in children's speech at 3, or 4, or 5 years of age is not helpful. A description of basic structures will have to emerge from frequency studies of adult speech.

One reason for the claim that very young children have mastered the basic structures of their language is that they often seem to be able to communicate very well in experiments, such that the experimenter concludes that there is a real discrepancy between their linguistic development and their "non-linguistic" cognitive development. In most experiments where language development has been studied, the subjects have been children from the middle, or upper-middle classes, i.e. from highly verbal environments. This selective sampling might have led to the belief in early linguistic precocity.

If only minimal environmental stimulation is necessary for language development, then all children of a certain age, irrespective of the differences in their environments, should have reached the same level of development. This is in fact Chomsky's view. He does not deny the existence of individual differences, but suggests that they are only trivial ones, e.g. in vocabulary.

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There are several ways of examining Chomsky's notions, one is to determine what kind of differences, if any, exist between groups of children of extremely divergent backgrounds, and another method would be to try to specify differences which may exist within a group.

Both of these approaches were employed in an experiment I carried out with my colleagues, Arthur McCaffrey and Sheldon Frank, on the syntax of 20 5-year-old Negro children from Baltimore, who came from grossly deprived environments. I would like to compare their syntactic structures to those of a group of middle-class white nursery school children who were investigated by Paula Menyuk in Boston. In both experiments the children's syntax was analyzed by means of transformational grammar.

One of the difficulties in comparing the language of these two groups is of course the dialect difference between them. An effort was made to minimize this difficulty by developing a concept of Functional Equivalence. This refers to the fact that a sequence of words in one dialect may be somewhat different from a sequence in the other dialect, yet the two sequences are syntactically functionally equivalent, e.g. his sister hat in the non-standard dialect is functionally equivalent to his sister's hat in the standard dialect, and her washes herself is functionally equivalent to she washes herself.

Looking at the differences in the range of syntactic structures available to each group it was found that there were in fact substantial differences between the groups, all of the differences favored the Boston group. Many of the Negro children, for example, did not employ such structures as Separation (He took it off), the Reflexive, the Relative Clause, Complement Infinitival (I want to play), and Complement Participial (I like singing) which were all used by the majority of Menyuk's sample.

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The differences between these two groups may of course be spurious. The structures which were available to the white children, and which had a low or zero frequency of occurrence in the Negro children's speech, might be so "disguised" in the Negro children's speech that they could not easily be recognized as functionally equivalent to the white children's standard English structures, and were therefore incorrectly placed as to syntactic category. It is not logically necessary that the Negro children have available the same range of syntactic structures as the white children, but it certainly seems unlikely that they do not use a sequence such as "I like to play" in either its standard or non-standard form. Another possibility is that we did not obtain a representative sample of the Negro children's speech. We are now analyzing another sample of speech for each child.

Let me now turn to a brief discussion of the differences <u>within</u> my Negro sample. These were all severely deprived children, yet in terms of their linguistic performance they were far from homogeneous. The total number of sentences produced by them in the experimental session ranged from 7 to 47, with an average of about 20 sentences. The total number of different syntactic structures used by these children showed a range of 3 to 22, with an average of about 11 different structures per child. A quantitative index of <u>syntactic complexity</u> was developed and an average sentence complexity score was computed for each child. The range for the average complexity scores was quite large, being from 2.8 to 9.4 units, with an average of 5.7 units. These three indices of linguistic performance are incidentally significantly intercorrelated, so that a child who produced an above average number of sentences exhibited a greater range of structures and a higher average sentence complexity score than a child who produced a below average number of sentences.

The theoretical position that downgrades ~~experimental~~ experiential factors in favor of maturational factors in language development has to account not only for large differences <u>between</u> divergent groups but also large differences <u>within</u> groups.

If one were to take at face value the observed differences in range of available structures between the white middle class children in Menyuk's study and the Negro lower class children in our own study, then it could be claimed that these differences are far from trivial. However, there are some difficulties in the way of being certain that the comparison is a valid one. Work is continuing both in order to increase the sample of speech and also to develop a table of structural equivalents between standard English and the non-standard English of the Negro children.

In addition, we have developed tests for evaluating a child's ability to imitate and comprehend a wide range of syntactic structures. The information we have obtained from these tests complements our knowledge of a child's productive ability.

The large differences on the three indices of linguistic performance within the Negro group are, I would maintain, far from trivial, and strongly suggest that the environment plays much more than a minor supportive role in language development. How to account for these differences is an intriguing problem and will demand much closer analysis of environments than has been previously carried out.

One could, of course, argue that even if large differences were observed between or within groups of young children, in the long run, i.e. at 15 years, 18 years or 21 years etc., everyone is likely to be linguistically equal. This may be true, although I am dubious about that, but if language is at all implicated in thinking behavior, then it is quite possible that any degree of immaturity in language development in early childhood could be significant in the child's general cognitive development.